LISTING OF THE CLAIMS

A detailed listing of claims is presented below. Please amend currently amended claims as indicated below including substituting clean versions for pending claims with the same number. In addition, clean text versions of pending claims not being currently amended that are under examination are also presented. It is understood that any claim presented in a clean version below has not been changed relative to the immediate prior version.

1. (Currently Amended) A method for measuring optical characteristics of a sub-component within a composite optical system, said method comprising:

a) generating an optical response from said composite optical system, by mixing a reflection of an input optical signal off said composite optical system and another reflection of said input optical signal off a reference component;

b) separating an optical response of said sub-component from said optical response of said composite optical system; and

c) determining said optical characteristics of said sub-component by utilizing at least one portion of said optical response of said sub-component.

2. (Currently Amended) The method as recited in Claim 1 wherein step a) comprises generating said optical response from said composite optical system by:

providing [[an]] <u>said</u> input optical signal having a time-varying frequency; and

illuminating said composite optical system with said input optical signal.

3. (Original) The method as recited in Claim 2 wherein step c) comprises

determining amplitude and phase of said optical response of said sub-component;

detecting a reference phase of said input optical signal; and

determining said optical characteristics of said sub-component by utilizing said amplitude and phase of said optical response of said sub-component and said reference phase of said input optical signal.

4. (Original) The method as recited in Claim 1 wherein said optical response is comprised of a heterodyne beat signal corresponding to said sub-component of said composite optical system.

5. (Original) The method as recited in Claim 4 wherein said step b) comprises using a bandpass filter to separate from

a plurality of heterodyne beat signals said heterodyne beat signal corresponding to said sub-component.

6. (Original) The method as recited in Claim 5 wherein step c) comprises utilizing orthogonal filters to determine amplitude and phase of said heterodyne beat signal corresponding to said sub-component.

7. (Original) The method as recited in Claim 1 wherein said at least one portion of said optical response of said sub-component is an amplitude portion of said optical response of said sub-component.

8. (Original) The method as recited in Claim 1 wherein said at least one portion of said optical response of said sub-component is a phase portion of said optical response of said sub-component.

9. (Original) The method as recited in Claim 1 wherein said at least one portion of said optical response of said sub-component is an amplitude portion and a phase portion of said optical response of said sub-component.

10. (Original) The method as recited in Claim 1 wherein step c) wherein said optical characteristics of said sub-component are selected from the group comprising reflectivity, transmissivity, and group delay.

11. (Currently Amended) A system for measuring optical characteristics of a sub-component of a composite optical system in response to an input light signal, said system comprising:

an optical detector optically coupled to said composite optical system to receive said optical response of said composite optical system, wherein said optical response is generated by mixing a reflection of said input light signal off said composite optical system and another reflection of said input light signal off a reference component;

a filter coupled to said optical detector, said filter for separating an optical response of said sub-component from said optical response of said composite optical system; and

a processing unit coupled to said filter, said processing unit for determining said optical characteristics of said sub-component by utilizing at least one portion of said optical response of said sub-component.

12. (Original) The system of Claim 11 wherein said input light signal is generated by a light source which generates an input light signal having a time-varying frequency.

13. (Original) The system of Claim 11 wherein said at least one portion of said optical response of said sub-

component is an amplitude portion of said optical response of said sub-component.

14. (Original) The system of Claim 11 wherein said at least one portion of said optical response of said sub-component is a phase portion of said optical response of said sub-component.

15. (Original) The system of Claim 11 wherein said at least one portion of said optical response of said sub-component is an amplitude portion and a phase portion of said optical response of said sub-component.

16. (Original) The system of Claim 11 wherein said optical response of said composite optical system is comprised of a plurality of heterodyne beat signals.

17. (Original) The system of Claim 16 wherein said filter is configured to separate from said plurality of heterodyne beat signals a heterodyne beat signal corresponding to said sub-component.

18. (Original) The system of Claim 17 wherein said processing unit comprises orthogonal filters for determining amplitude and phase of said heterodyne beat signal corresponding to said sub-component.

19. (Original) The system of Claim 11 wherein said optical characteristics of said sub-component are selected from the group comprising reflectivity, transmissivity, and group delay.

20. (Currently Amended) The system of Claim 11 further comprising:

[[a second]] another optical detector adapted to be optically coupled to said input light signal, said [[second]] another optical detector configured to detect a reference phase of said input light signal[[,]] ; and

said [[first]] optical detector configured to detect a plurality of heterodyne beat signals comprising said optical response.